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(71) Applicants and
(72) Inventors: **NOOITGEDAGT, Eduard** [NL/NL]; Schapenmeent 180, NL-1357 GR Almere (NL). **NOOITGEDAGT, Ronald** [NL/NL]; Schapenmeent 208, NL-1357 GV Almere (NL).

(74) Agent: **OCTROOIBUREAU KLAVERS B.V.**; Markerkant 1201.20, NL-1314 AJ Almere (NL).

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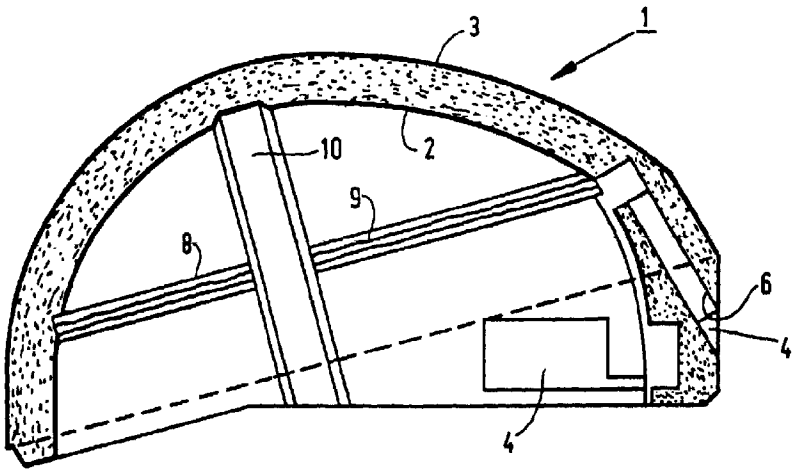
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** HEAD COVERING INCLUDING AN INNER HELMET PROVIDED WITH AUDIO EQUIPMENT



(57) **Abstract:** What is disclosed is a head covering (1) provided with a mounting device, in which one or more electrical units (5), such as audio playback equipment, a transmitter-receiver, a radio receiver, a transponder or the like are present. The mounting device comprises mounting slides (6) fitted in one or more recesses (4) in the head covering (1) One or more of the electrical units (5) comprise remote control means, a control portion of which is associated with the head covering in the form of a separate unit, which can be mounted on a bicycle, for example. One or more electrical units (5) in the head covering (1) can be remotely controlled by means of said unit.

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HEAD COVERING INCLUDING AN INNER HELMET PROVIDED WITH AUDIO EQUIPMENT

The present invention relates to a head covering provided with a mounting device, in which one or more electrical units, such as audio playback equipment, a transmitter-receiver, a radio receiver, a transponder or the like are present.

The present invention furthermore relates to an inner helmet for use in such a head covering, to a built-in kit for said head covering or for an inner helmet, and to a control unit for controlling one or more electrical units in the head covering.

Such a head covering is known from German utility model DE 200 16 247 U1. From the said document a head covering comprising one or more electrical units is known, which units are exchangeably provided in at least one mounting device. As a result of the exchangeability of the electrical units, the same head covering can be used with varying units and be individualised whilst carrying the same advertising material. The mounting device can be in the form of a bag, which may or may not be closable, or in the form of a hook or an eye, whilst the head covering may be a hat, a (protective) helmet, a cap or the like. One drawback of the known head covering is the fact that the electrical units, which are usually fairly costly and which have a high reproduction quality, are loose and unprotected in the known mounting device. In the case of an external blow or impact, this may cause injury to the person wearing the head covering or to the person or the goods with whom (which) the wearer comes into contact, but it may also cause damage to the various electrical units that are being carried along.

The object of the present invention is to increase the wearing comfort of a head covering provided with electrical units, but it is also an object of the present invention to enhance the safety of the wearer of the head covering on the one hand and of external persons and goods on the other hand, and to limit the damage that may be caused under certain circumstances.

In order to accomplish that objective, the head covering according to the invention is characterised in that the mounting device comprises a mounting slide fitted in a recess in the head covering.
The advantage of the head covering according to the invention is that the head covering has become multi-functional, since it envelopes the mounting slide, within which the usually costly electrical units are well-protected now, whilst it also protects external persons and goods from being injured by units that might come loose in the case of a blow or an impact. In addition to that, the wearer of the head covering will not experience any inconvenience caused by a relatively small additional weight of the electrical units, because they are properly secured within the mounting slide whilst they are furthermore surrounded by protective head covering material in which the recess has been formed by removing material.

If the head covering is a two-piece unit, consisting of an outer helmet and an inner helmet, the mounting device accordingly comprises a mounting slide fitted in a recess in the inner helmet.

One preferred embodiment of the head covering according to the invention is characterised in that one or more

electrical units comprise remote control means, a control portion of which forms a separate unit associated with the head covering.

It is advantageous that the separate control unit can be carried along in a person's pocket but also be mounted on a vehicle, for example, such as a bicycle, if desired, or even be combined with, for example, a speedometer, if desired, whilst suitably programming unused control elements thereof, such as touch controls.

Another preferred embodiment concerns a separate built-in kit to be sold in retail businesses, for example, which is suitable for being built into the head covering or the inner helmet, which built-in kit comprises a mounting device in the form of a mounting slide provided with one or more electrical units and, for example, mounting instructions.

The built-in kit furthermore comprises one or more electrical units to be fitted in the mounting slide, such as one or more pieces of audio equipment, for example audio reproducing equipment, a transmitter-receiver, a radio receiver, a transponder, an antenna, a power supply unit, sound reproducing means, remote control means and/or a control unit for said remote control means.

Further possible embodiments of the present invention are defined in the successive independent claims.

The present invention and its further advantages will now be explained in more detail with reference to the accompanying drawing, in which like parts are indicated by the same reference numerals in the various figures. In the drawing:

Figure 1 is a rear view of a possible embodiment of the head covering according to the invention;

Figure 2 is a view, partially in section, of the head covering of Figure 1; and

Figure 3 is a view of a mounting slide for use in the head covering according to Figures 1 or 2.

Figures 1 and 2 show a head covering 1 which can be worn when carrying out work, for example, or when practising various sports. The illustrated head covering 1 is a one-piece unit. In those cases where the head covering is a two-piece unit consisting of an outer helmet and an inner helmet, however, the term head covering 1 is understood to mean the inner helmet. The illustrated head covering 1 has a double shell, namely an inner shell 2 and an outer shell 3. It is also possible not to use an outer shell 3. The inner shell 2 is generally made of an energy-absorbing material, such as a plastic, for example polystyrene or polyurethane, compressed cork or the like, which is used to make the inner shell 2 impact-resistant. Various recesses 4 are formed in the shell 2, which function to accommodate electrical units 5 therein. Examples of electrical units are: audio equipment, such as an amplifier, an equaliser, a (mini) cassette or CD-player, a memory chip reader, a transmitter-receiver, a radio receiver, a transponder, an antenna, a power supply unit and/or sound reproducing means, such as loudspeakers, headphones or earplugs. Electrical units 5 that are associated with each other are contained in one or more mounting slides 6. In the embodiment as shown in figures 1 and 2, the mounting slide 6 is fitted in a recess 4 formed at least on the rear side of the head covering 1. The electrical units 5 in question are fitted in the mounting slide. Preferably, the units 5 are secured therein by

means of a snap-in connection or a safety catch connection 7 - see figure 3 -which enables easy exchanging of the units 5 whilst the units 5 are nevertheless firmly anchored therein. Thus they will not come loose as a result of a blow or an impact caused by a fall in the case of an accident, for example, whilst on the other hand they will not cause any damage since the units 5 are surrounded by material from which the head covering 1 is made. Furthermore, the protective function of the head covering 1 is not adversely affected by the presence of the electrical units 5 in the mounting slide 6.

One or more antenna windings 9 of, for example, a ring antenna can be fitted in recesses in the form of slots 8, whilst a headphone and the wires extending thereto can be fitted in transverse slots 10. A separate recess 4 is formed on the side of the head covering 1 for the purpose of accommodating batteries or electrical cells. If one or more solar cells are arranged on the outer surface of the head covering 1, the separate recess 4 can be left out, if desired. The solar cells may also be combined with, for example, a rechargeable battery, so that the use of one or more electrical units does not depend on the presence of sufficient sunshine. In the illustrated embodiment, control buttons or keys T1 .. T3 are present on the rear side of the head covering 1, for example for tuning to a transmitter or for adjusting the desired sound level of the sound reproducing means, such as loudspeakers, headphones or earplugs.

In one preferred embodiment (not shown) one or more of the electrical units 5 may comprise remote control means. The control portion thereof, which is associated with the head covering 1, can be carried along as a separate unit or, for example when biking, be mounted on the bicycle, or be

combined with other appliances that are present, such as pulse rate metres or speedometers.

The various components and units that are described herein can be marketed as modular built-in kits, so that the user can build the desired combination of units into the thus individualised head covering himself or herself, or have it built into said head covering, in a safe manner with the aid of mounting instructions supplied with the kit.

CLAIMS

1. A head covering provided with a mounting device, in which one or more electrical units, such as audio playback equipment, a transmitter-receiver, a radio receiver, a transponder or the like are present, characterized in that the mounting device comprises a mounting slide fitted in a recess in the head covering.

2. A head covering according to claim 1, characterized in that said one or more electrical units are exchangeably fitted in the mounting slide.

3. A head covering according to claim 1 or 2, characterized in that said one or more electrical units are fitted in the mounting slide by means of a snap system or a safety catch system.

4. A head covering according to any one of the claims 1 - 3, characterized in that said one or more electrical units comprise an antenna which is fitted in the head covering.

5. A head covering according to claim 4, characterized in that said antenna is a ring antenna.

6. A head covering according to claim 4 or 5, characterized in that the head covering is provided with slots, in which said antenna is arranged.

7. A head covering according to any one of the claims 1 - 6, characterized in that one or more electrical units comprise a power supply unit, which is fitted in a recess of the head covering.

8. A head covering according to any one of the claims 1 - 7, characterized in that said one or more electrical units comprise remote control means, a control portion of which is associated with the head covering in the form of a separate unit.

9. A head covering according to any one of the claims 1 - 8, characterized in that said one or more electrical units comprise sound reproducing means fitted in recesses in the head covering, such as loudspeakers, headphones or earplugs.

10. A head covering according to any one of the claims 1 - 9, characterized in that said head covering is an inner helmet of a two-piece head covering.

11. An inner helmet suitable for use in the head covering according to any one of the claims 1 - 10, which head covering is provided with a mounting device, in which one or more electrical units, such as audio playback equipment, a transmitter-receiver, a radio receiver, a transponder or the like are present, characterized in that said head covering comprises an outer helmet and an inner helmet, and that the mounting device comprises a mounting slide fitted in a recess of said inner helmet.

12. An inner helmet according to claim 11, characterized in that said inner helmet is made of a shock-absorbing material, such as a plastic, for example polystyrene, polyurethane or the like

13. A built-in kit suitable for being built into the inner helmet according to claim 11 or 12, which built-in kit comprises a mounting device in the form of a mounting slide provided with one or more electrical units and, for example, mounting instructions.

14. A built-in kit according to claim 13, characterized in that said built-in kit furthermore comprises one or more electrical units to be mounted in the mounting slide, such as one or more pieces of audio equipment, for example audio reproducing equipment, a transmitter-receiver, a radio receiver, a transponder, an antenna, a power supply unit, sound reproducing means, remote control means and/or a control unit for said remote control means.

15. A control unit for controlling one or more electrical units in the head covering according to any one of the claims 1 - 10.

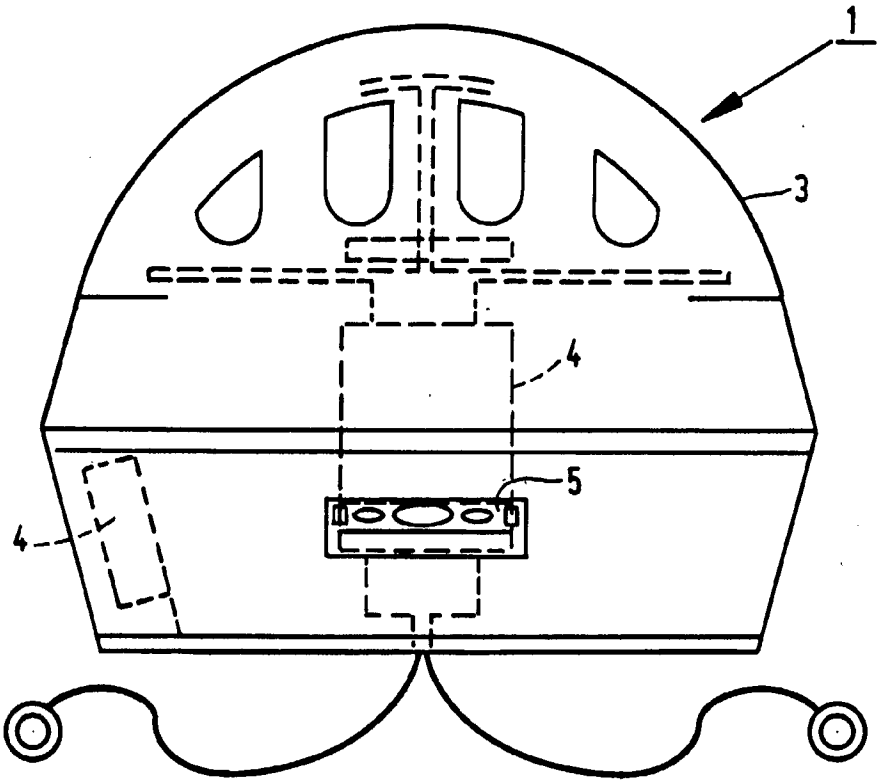

FIG. 1

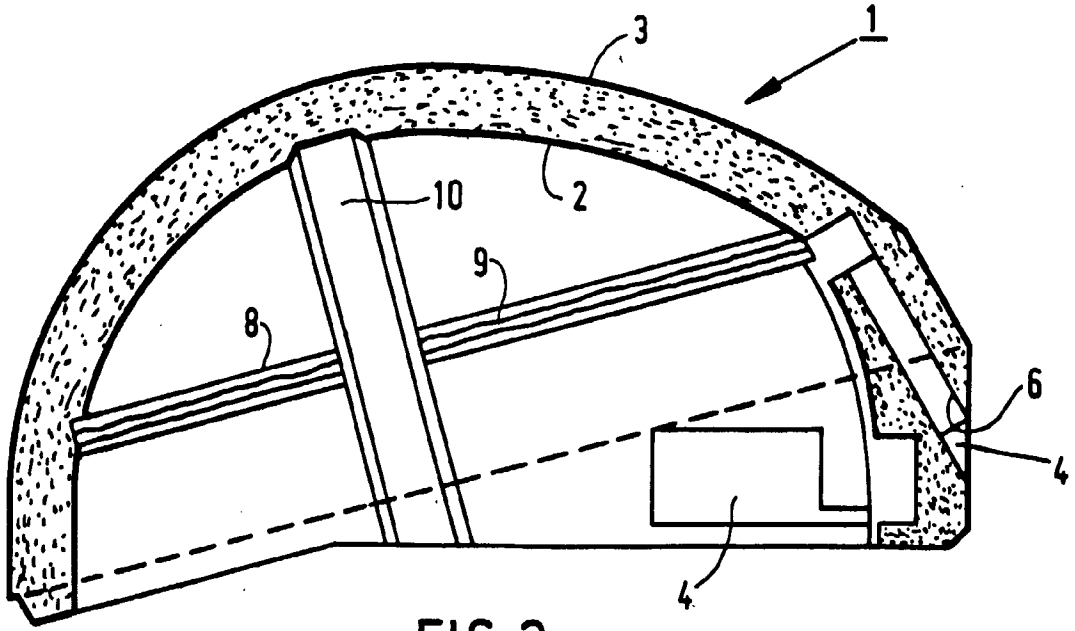

FIG. 2

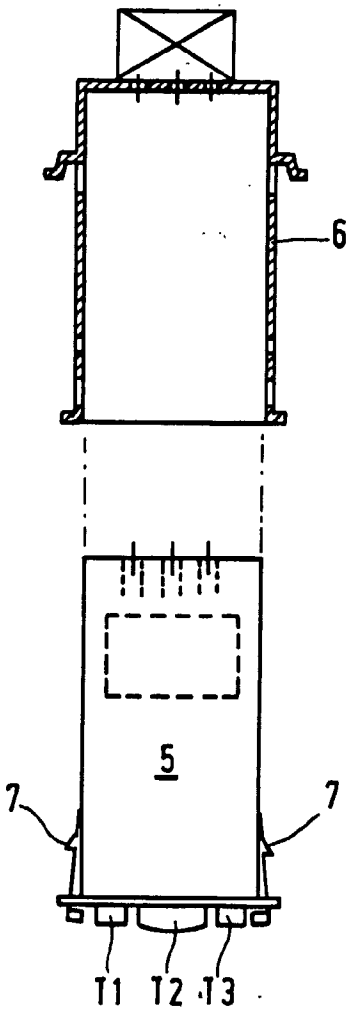

FIG. 3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/NL 02/00158

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A42B3/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A42B H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 30 39 597 A (P. KRAUSE) 19 May 1982 (1982-05-19) the whole document	1
A		3,8, 13-15
Y		2,4-7, 9-12

Y	FR 2 421 525 A (J.-C. MARGEAT) 26 October 1979 (1979-10-26) the whole document	2

Y	PATENT ABSTRACTS OF JAPAN vol. 011, no. 152 (E-507), 16 May 1987 (1987-05-16) -& JP 61 288525 A (SANSHIN IND CO LTD), 18 December 1986 (1986-12-18) abstract	4-6

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
6 May 2002	14/05/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Bourseau, A-M

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 412 205 A (A. TISSERONT ET AL.) 13 February 1991 (1991-02-13) column 5, line 54 -column 7, line 14 claims; figures	7,9-12
A	US 4 524 461 A (AMERICAN TRANSCEIVER CORP.) 18 June 1985 (1985-06-18) column 6, line 26 -column 7, line 33 figures 2-4	1-3
A	DE 199 62 603 A (HONDA GIKEN KOGYO K.K.) 6 July 2000 (2000-07-06) column 4, line 9 -column 7, line 5 figures 1-6	8,15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/NL 02/00158

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
DE 3039597	A	19-05-1982	DE	3039597 A1	19-05-1982
FR 2421525	A	26-10-1979	FR	2421525 A1	26-10-1979
JP 61288525	A	18-12-1986	NONE		
EP 0412205	A	13-02-1991	EP	0412205 A1	13-02-1991
			AT	95675 T	15-10-1993
			CA	2023088 A1	12-02-1991
			DE	68909934 D1	18-11-1993
			DE	68909934 T2	07-04-1994
			ES	2025483 A6	16-03-1992
			US	5119505 A	02-06-1992
US 4524461	A	18-06-1985	NONE		
DE 19962603	A	06-07-2000	JP	2000196529 A	14-07-2000
			DE	19962603 A1	06-07-2000